STUDIES ON *CERCOSPORA* AND SIMILAR FUNGI

II. NEW COMBINATIONS IN *CERCOSPORA* AND *MYCOVELLOSIELLA* *

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ABSTRACT. — Type studies proved that *Napicladium janseanum* Racib. (1900) is a *Cercospora* conspecific with *C. oryzae* Miyake (1910), a known parasite of rice; it is transferred accordingly. *Cercospora carlinae* Sacc. and *Cladosporium bellynckii* Westend. are transferred to *Mycovellosiella*.

***Cercospora janseana* (Racib.) O. Const., comb. nov.** — Fig. 1.
Napicladium janseanum Racib., Parasitische Algen und Pilze Java's, 2 : 41. 1900 (basionym).

= *Cercospora oryzae* Miyake, J. Coll. Agric. imp. Univ. Tokyo 2 (4) : 263. 1910.

Leaf spots visible on both surfaces, pale brown to brown, 3-15 x 1-3 mm, the long axis parallel to that of the leaf, margin effuse or darker, sometimes zonate and coalescing. **Caespituli** mostly hypophyllous, between the veins, hardly visible on the dried specimens. **Conidiophores** single or in groups of 3-5, macronematous, brown, paler towards the tip, erect, straight or slightly curved, sometimes geniculate, septate, 55-125 x 4-6μm, walls smooth, 0.5-0.7μm thick. Conidiogenous cells terminal, polyblastic, with 1-8 conspicuous pigmented conidial scars. **Conidia** hyaline or very pale olivaceous, cylindrical when young but obclavate when mature, 20-65 x 4-6μm, straight or slightly curved, smooth and thin-walled, (1-)3-4(-8)- septate, with rounded tip and almost truncate base, with pigmented, thickened, 1-2μm wide hilum.

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Fig. 1. — *Cercospora janseana* on *Oryza sativa*. a : from KRA, lectotype of *Napicladium janseanum*; b : from ZT; c : from BUCM 59761.

On *Oryza sativa* L., widespread in tropical areas and south and southeast U.S.A. (CMI Map 71 (ed. 4), 1974; MULDER & HOLLIDAY, 1974).

Specimens examined (under *Napicladium janseanum*) : INDONESIA, Java, Bogor, 1900, M. Raciborski, KRA (lectotype, des. mihi); same collection in BUCM 59761 and ZT (two specimens).

When RACIBORSKI described *Napicladium janseanum* he referred to a paper by JANSE (1895) in which a detailed description of both the disease and the pathogen are given. The disease was known as «omo mentek», a Malaysian name also used for other diseases of rice (see BREDA DE HAAN, 1902) and recorded since 1840 in Java. JANSE even mentioned a resemblance of the fungus to *Napicladium* and *Cercospora* and his report antedates a paper by MELTCALF (1906) which was thought to be the first record of a *Cercospora* disease on rice. According to HUGHES (1958) the type species of *Napicladium* Thüm. is conspecific with *Spilocaea pomi* Fr., a quite different fungus from *Cercospora*. The heterogenous assemblage of fungi described in *Napicladium* has been transferred to dematiaceous Hyphomycetes genera such as *Clasterosporium*, *Deightoniella*, *Heterosporium*, *Prathigada*, *Septoidium*, *Stenella* and *Stigmina*.

According to OU (1972, p. 219) *N. janseanum* is similar to *Ramularia oryzae* Deighton & Shaw (1960), now known as *Mycovellosiella oryzae* (Deighton & Shaw) DEIGHTON (1979). However, he had not examined the original specimen, apparently basing his assumption on the remark made by RACIBORSKI (1900) that *Ramularia* provides the most natural relationship for *N. janseanum*. The brown, well differentiated conidiophores and almost hyaline, obclavate conidia with marked hila exclude this fungus from *Ramularia*. The conidia sometimes bear a second thickened hilum at the tip which accounts for their catenulation, but short chains are also rather common in *Cercospora* and were already noticed in *C. oryzae* by GANGULY (1946).

The type of *C. oryzae* could not be examined, but comparison of *C. janseana* with the description of *C. oryzae* provided by CHUPP (1954), OU (1972) and MULDER & HOLLIDAY (1974), leaves no doubt about their identity. According to DEIGHTON (1967), the teleomorph of *C. oryzae*, and thus *C. janseana*, is *Sphaerulina oryzina* Hara.

C. janseana produces «narrow brown leaf spots», a rather common disease of rice but considered to be of minor importance except to susceptible cultivars (OU, 1972; MULDER & HOLLIDAY, 1974; HOLLIDAY, 1980).

***Mycovellosiella carlinae* (Sacc.) O. Const., comb. nov.** — Fig. 2 .
Cercospora carlinae Sacc., Michelia 1 : 269. 1878 (basionym).

Leaf spots first appearing as yellowish discolorations which later turn brown, the affected tissues sometimes becoming necrotic. Stroma absent to well developed, composed of almost isodiametric brown cells. **Caespituli** amphigenous, brown, effuse, covering the leaf spots. **Conidiophores** pale to medium brown,

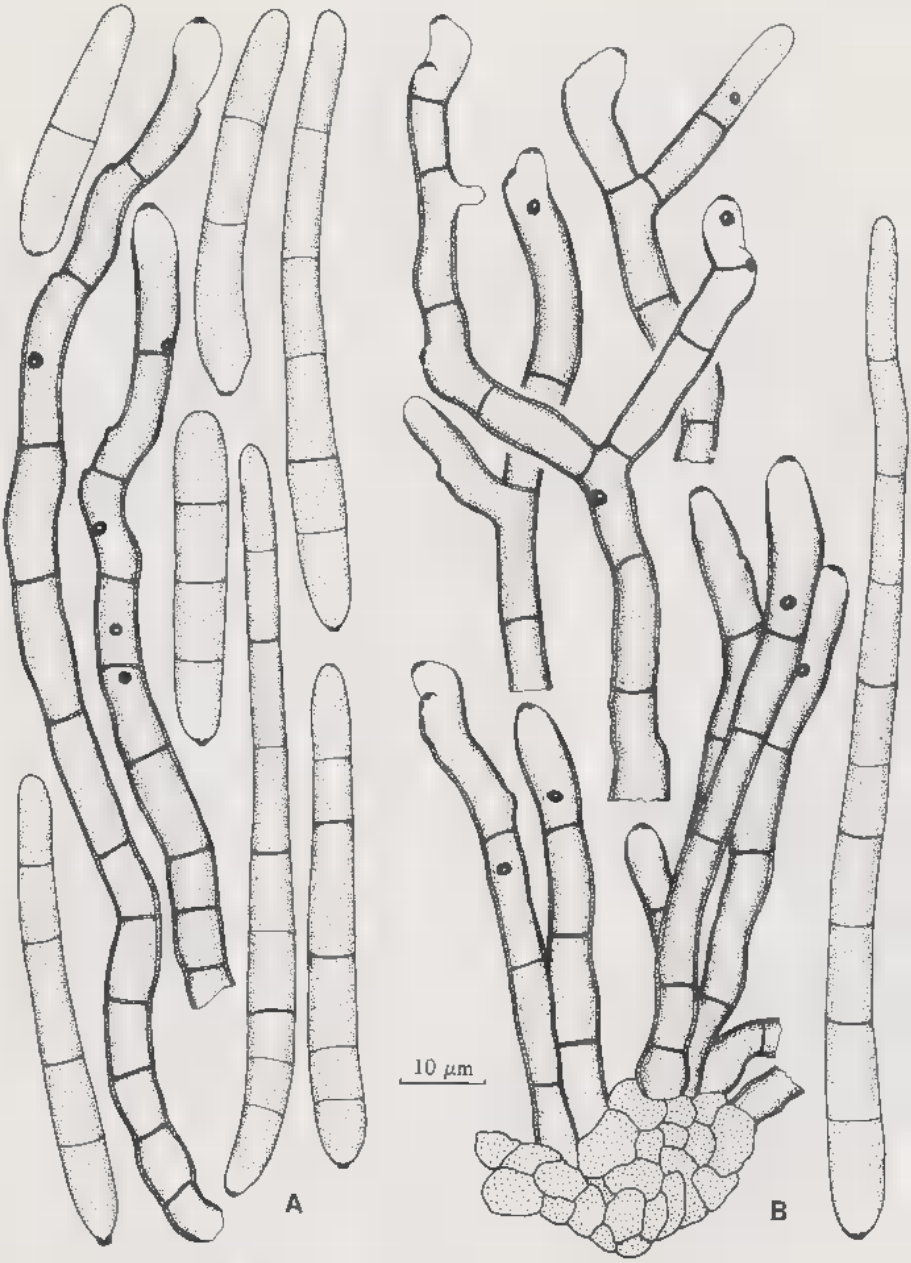

Fig. 2. – *Mycovellosiella carlinae* on *Carlina vulgaris*. a : from PAD, holotype of *Cercospora carlinae*; b : from BUCM 62445.

few or up to 40 in a fascicle, more or less straight when short, flexuous and geniculate when long, 45-300 x 5-6μm, simple or branched, smooth, septate every 7-20μm. Conidiogenous cells intercalary, terminal or arising as short lateral branches, polyblastic, conidial scars conspicuous, 1.5-2μm diam. **Conidia** olivaceous to pale brown, obclavate-cylindric, straight or slightly curved, 30-140 x 5-6μm, with rounded tip, smooth, 1-11-septate, some septa obscure, others distinct.

On *Carlina vulgaris* L. and *C. vulgaris* subsp. *longifolia* Hayek in Europe.

Specimens examined (all under *Cercospora carlinae* (Sacc.): ITALY, Nervesa, Aug. 1873, P.A. Saccardo, holotype of *C. carlinae* (Pad). Sweden, Ostergötland, Gryt Parish, 27 Aug. 1944, J.A. Nannfeldt in Lundell & Nannfeldt, Fungi exsicc. suecici No 1934 (W 1953/5105; K) Kopinge dins Oslandie, 27 July 1928, A.G. Eliasson (K). CZECHOSLOVAKIA; Mähr. - Weisskirchen, Aug. 1940, F. Petrak, Mycoth. gen. No 312 (W 1953/8365; K); Leipnik, 4 Sept. 1914, F. Petrak, Flora Bohemiae et Moraviae exsicc., Ser. II, Abt. 1, Pilze, No 1210 (K). GERMANY, Königstein, July and Aug. 1906, W. Krieger, Fungi saxon. No 1989 (K). ROMANIA, Distr. Buzau, Mt. Siriu, Vina Mare, 13 Aug. 1972, O. Constantinescu & G. Negrean, Herb. Mycol. Roman. No 2445 (BUCM 62445; CBS; K).

Numerous perithecia with immature asci were found in two specimens collected in Sweden. Apparently they represent the *Mycosphaerella* teleomorph of this fungus. *M. affinis* (Wint.) Starb. (LUNDELL & NANNFELDT, 1950) and *M. carlinae* (Wint.) Lindau (PETRAK, 1927) have been claimed to be teleomorphs, but no experimental proof was provided. They are distinguished mainly by the size of the ascospores (TOMILIN, 1979).

M. carlinae is dimorphic just as *M. concors* (DEIGHTON, 1974; CONSTANTINESCU, 1975). On the upper leaf surface the stroma is more developed and the conidiophores shorter, almost straight, simple and aggregated in more or less dense fascicles, whereas on the lower surface the stroma is less developed, and the fascicles are composed of few, long, sinuous and sometimes branched conidiophores.

Fifty one species have been described in *Mycovellosiella* (MUNTANOLA, 1960; DEIGHTON, 1974, 1979), but thus far no attempt has been made to construct a key. Although all species are biotrophic no data concerning their host specificity are available. Twelve of these species are parasitic on different genera of the Compositae but only *M. sublateritia* is confined to one host, *Vernonia*, related to *Carlina*. *M. carlinae* differs from *M. sublateritia* by its fasciculate, more elaborate conidiophores and larger conidia with prominent basal hila.

***Mycovellosiella bellynckii* (Westend.) O. Const., comb. nov.** – Fig. 3.

Cladosporium bellynckii Westend., Bull. Acad. r. Belg., Cl. Sci. 21 : 240. 1854 (basionym). – *Cercospora bellynckii* (Westend.) Niessl, Hedwigia 15: 1. Jan. 1876. – *Cercospora bellynckii* (Westend.) Sacc., Nuovo G. bot. ital. 8 : 188. 1876.

Cercospora vincetoxici Sacc., Mycoth. veneta No. 283. 1874 and Syll. Fung. 15 : 85. 1901 (non Ell. & Everth., J. Mycol. 8 : 70. 1902).

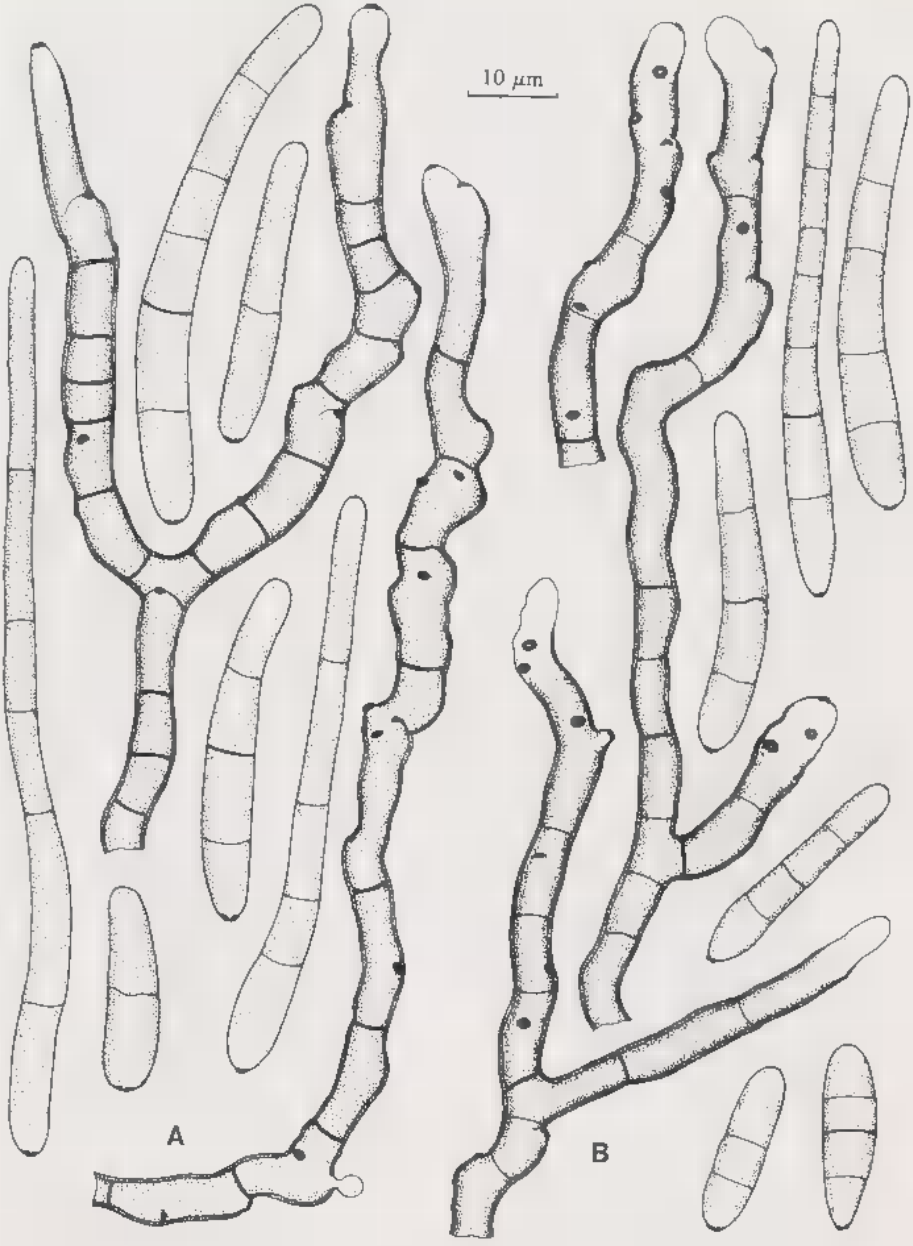

Fig. 3. – *Mycovellosiella bellynckii* on *Vincetoxicum hirundinaria*. a : from W, lectotype of *Cercospora vincetoxici*; b : from BR, holotype of *Cladosporium bellynckii*.

Leaf spots on the upper surface, effuse, yellowish, sometimes turning brown. **Caespituli** hypophyllous, brown or reddish brown, covering areas of 4-20 mm diam. or the entire surface. Stroma reduced, composed of more or less spherical, brown cells. **Conidiophores** pale reddish brown, divergent, up to 30 in a fascicle, variously curved and geniculate, 35-385 x 3.5-6µm, simple or ramified, smooth, septate every 5-15µm. Conidiogenous cells intercalary or terminal, polyblastic, conidial scars 1.5-2µm diam. **Conidia** subhyaline to pale olivaceous, paler towards the tip, obclavate-cylindrical, more or less curved, rarely straight, 30-170 x 4,5-6,5µm, with rounded tip, smooth or finely rugulose, 1-13-septate, some septa obscure, others distinct.

On *Vincetoxicum hirundinaria* Medicus (= *V. officinale* Moench; *Cynanchum vincetoxicum* (L.) Pers.) in Europe.

Specimens examined : BELGIUM, Bois de Dave, près de Namur, Bellynck, herb. Westend. No 1089, holotype of *Cladosporium bellynckii* Westend. (BR). ITALY, Bosco Montello (Treviso), Sept. 1874, P.A. Saccardo, Mycoth. veneta No 283, isotype of *Cercospora vincetoxici* Sacc. (W); Val di Genova, 28 July 1904, J. E Kabát, Kabát & Bubák, Fungi imperf. exsicc. No 346 (W 1906/1073). FRANCE, Francheville (Rhône), Sept. 1880, J. Therry, Roum., Fungi gall. exsicc. No. 1241 (L 910. 227-565); ibid., Aug. 1879, Thümen, Mycoth. univ. No 1567 (W). GERMANY, Distr. Hersbruck, Happurg, Doensberg, 3 Sept. 1948, K. Starcs, No 9650 (L 967.320-251); ibid., Pommelsbrunn, 8 Aug. 1948, No 9843 (L 967.320-301); Brandenbourg, between Rangsdorf and Mittenwalde, 9 Oct. 1910, H. Sydow, Mycoth. germ. No 1044 (W 1911/6885; L 912.332-59). SWITZERLAND : Zürich, Wollishofer Allmend, Aug. 1878, G. Winter, Rabenh., Fungi europ. No 2549 (W 1933/4772); Horbisal near Engelberg 11 Aug. 1910, O. Jaap, Fungi sel. exsicc. No 500 (L 912.332-58). ROMANIA, Cluj, Bot. Garden, 6 Aug. 1953, A. Negru in T. Savul., Herb. Mycol. Roman. No. 1550 (W 1956/11600; CBS; BUCM 61550). USSR, Prov. Vidzeme, Distr. Riga, Koknese, 25 Aug. 1940, J. Smarods, Fungi latvici exsicc. No. 950 (W 1943/35).

M. bellynckii is the only *Mycovellosiella* parasite on Asclepiadaceae. No other genera of Gentianales or the related order Cornales are hosts for *Mycovellosiella* species.

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